Message

From: Mack, Sara [mack.sara@epa.gov]
Sent: 4/22/2019 8:44:02 PM
To: OPP AD Managers [OPP_AD_Managers@epa.gov]; OPP BEAD Managers [OPP_BEAD_Managers@epa.gov]; OPP Deputy & Associate Directors [OPP_Deputy_&_Associate_Directors@epa.gov]; OPP Division Directors [OPP_Division_Directors@epa.gov]; OPP EFED Managers [OPP_EFED_Managers@epa.gov]; OPP FEAD [OPP_FEAD@epa.gov]; OPP HED Managers [OPP_HED_Managers@epa.gov]; OPP IO [OPP_IO@epa.gov]; OPP PRD Managers [OPP_PRD_Managers@epa.gov]; OPP RD Managers [OPP_RD_Managers@epa.gov]; Rust, Mary [Rust.Mary@epa.gov]; Dunn, Alexandra [dunn.alexandra@epa.gov]; OPPT IO Managers [OPPT_IO_Managers@epa.gov]; OPPT CCD Managers [OPPT_CCD_Managers@epa.gov]; OPPT CESSD Managers [OPPT_CESSD_Managers@epa.gov]; OPPT EAD Managers [OPPT_EAD_Managers@epa.gov]; OPPT IMD Managers [OPPT_IMD_Managers@epa.gov]; OPPT NPCD Managers [OPPT_NPCD_Managers@epa.gov]; OPPT RAD Managers [OPPT_RAD_Managers@epa.gov]; OPPT TRI Managers [OPPT_TRI_MANAGERS@epa.gov]; OSCP Managers [OSCP_Managers@epa.gov]; Beck, Nancy [Beck.Nancy@epa.gov]; Bertrand, Charlotte [Bertrand.Charlotte@epa.gov]; Baptist, Erik [Baptist.Erik@epa.gov]; Dunton, Cheryl [Dunton.Cheryl@epa.gov]; Strauss, Linda [Strauss.Linda@epa.gov]; Hanley, Mary [Hanley.Mary@epa.gov]; Keller, Kaitlin [keller.kaitlin@epa.gov]; Tyler, Tom [Tyler.Tom@epa.gov]
Subject: OPPT/OPP/OCSPP Clips 4/22

OPPT/OPP/OCSPP Clips

April 22, 2019

Chlorpyrifos

Capital Press: Court gives EPA 90 days to review petition to ban chlorpyrifos

EcoWatch: 'Finally!': Court Orders EPA to Stop Stalling Potential Ban on Pesticide Tied to Brain Damage in Kids

NBC Los Angeles: EPA has 90 Days to Justify Use of Dangerous Pesticide, Court Rules

PoliticoPro: Appeals on court orders EPA to act on demands to ban chlorpyrifos

Dicamba

Food & Environment Reporting Network: The herbicide dicamba is sparking a civil war in farm country

Glyphosate

Northern California Record: Married couple testifies in third Monsanto cancer case

Insecticide

The Epoch Times: Someone Is Mixing Insecticide into Meat and Poisoning Pet Dogs and Wildlife in Wisconsin Counties

The High Plains Journal: Canola fields are a-buzz over BMPs

Science Daily: Neonics hinder bees' ability to fend off deadly mites

PFAS

The Intelligencer: Five years after discovery, PFAS concerns continue in Bucks and Montgomery counties

M Live: PFAS found in Saline during investigation across River Raisin watershed

NPR: Scientists Dig Into Hard Questions About the Fluorinated Pollutants Known as PFAS

Toxic Chemicals

Environmental Health News: Kids in Southwester Pennsylvania are exposed to carcinogenic coke oven emissions at shockingly higher rates than the rest of the country

Northern California Record: Bill aimed at banning chemicals in personal care products stalls in California legislature

The Progressive Farmer DTN: EPA to Revisit Chlorpyrifos Petition

Chlorpyrifos

Capital Press

Court gives EPA 90 days to review petition to ban chlorpyrifos

https://www.capitalpress.com/nation_world/agriculture/court-gives-epa-days-to-review-petition-to-ban-chlorpyrifos/article_66988440-62e9-11e9-90ae-0304512d852a.html

Don Jenkins

Posted: 12:00pm, April 22, 2019

The Environmental Protection Agency has 90 days to decide whether to allow farmers to continue using the pesticide chlorpyrifos, a federal court ordered Friday.

The 9th U.S. Circuit of Appeals issued the mandate at the request of environmental and labor groups, and seven states, including Washington and California, and the District of Columbia.

They claim chlorpyrifos must be prohibited because exposure causes unacceptable health risks, especially to young children. The court didn't rule on whether chlorpyrifos was safe, but it did say EPA must revisit its 2017 decision not to ban the pesticide.

"We commend the court for this ruling as it forces the EPA to stop stalling," Earthjustice attorney Patti Goldman said in a written statement.

Chlorpyrifos, which kills a variety of insects and worms, has been registered for use since 1965. It's used on more than 50 crops and has been effective and safe, according to farm groups and the USDA.

Anti-pesticide groups petitioned the EPA in 2007 to ban chlorpyrifos. The Obama EPA wrestled with the petition and proposed a ban, but ultimately punted the final decision to the Trump EPA.

While denying the petition, the EPA said it was continuing to review whether the pesticide is safe. The assessment is due to be completed in 2022.

The environmental and labor groups have continued to press in court for a ban, or at least force the EPA to move up its decision.

Friday's order will require the EPA to uphold or retract its reasons for rejecting the 2007 petition. At the time, the EPA said the science was unsettled.

"We are reviewing the court's order and will be taking final action on the administrative objections before the agency within 90 days," EPA spokesman James Hewitt said in a written statement.

EcoWatch

'Finally!': Court Orders EPA to Stop Stalling Potential Ban on Pesticide Tied to Brain Damage in Kids

https://www.ecowatch.com/epa-chlorpyrifos-court-2635261283.html

Jessica Corbett, Common Dreams

Posted: 10:09am, April 22, 2019

In a ruling welcomed by public health advocates, a federal court on Friday ordered the Trump administration to stop stalling a potential ban on a pesticide linked to brain damage in children, giving regulators until mid-July to make a final decision.

Citing unacceptable health risks for children, the U.S. Environmental Protection Agency (EPA) endedhousehold use of chlorpyrifos in 2000. However, farmers can still use the pesticide — which is also tied to nervous system problems in people and animals — on crops such as apples, broccoli, corn and strawberries.

The unanimous ruling Friday from the U.S. Court of Appeals for the 9th Circuit is the latest development in a drawn out court battle between the EPA — which blocked a planned agricultural ban on chlorpyrifos in 2017 — and the anti-pesticide, environmental and farmworkers organizations who disagreed with that decision.

Earthjustice attorney Patti Goldman, who represents the groups fighting to ban the pesticide from foods, commended the court for its ruling in a statement Friday.

"While we are moving forward, the tragedy is that children are being exposed to chlorpyrifos, a pesticide science has long shown is unsafe," she said. "We hope Trump's EPA finally decides to protect the future of countless children and the health of millions of farmworkers."

Noting that public health advocates have been working to outlaw the pesticide for more than a decade, Natural Resources Defense Council senior attorney Mae Wu said, "All the science says EPA must ban."

Kristin Schafer, executive director of the Pesticide Action Network, tweeted, "No more delay, [EPA]."

Scandal-ridden former EPA chief Scott Pruitt blocked the ban on chlorpyrifos in March of 2017, shortly after he met with the chief executive of Dow Chemical, which has been selling the pesticide for decades and lobbied against restrictions on it.

The appeals court ruled last August that the EPA had illegally impeded the ban and ordered the agency to finalize its proposal. But then, the EPA requested a rehearing, which the court granted in February.

Shortly before the rehearing last month, Goldman explained the legal issues behind the case in a short video:

Environmental Working Group president Ken Cook, in a statement Friday, criticized EPA Administrator Andrew Wheeler — who replaced Pruitt — for failing to ban the pesticide and urged him to fulfill the agency's mission to protect human health and the environment.

"We'll find out in three months if the Trump EPA remains under the tight control of the chemical agriculture industry, or if Administrator Wheeler will finally take his job seriously and ban this brain-damaging pesticide," said Cook. "It's deplorable that Wheeler has defied the court's order for almost nine months, and it's time for him to do his job and protect public health."

PoliticoPro

Appeals on court orders EPA to act on demands to ban chlorpyrifos
https://subscriber.politicopro.com/article/2019/04/19/epa-chlorpyrifos-court-3115794

Jesse Chase-Lubitz

Posted:6:21pm, April 19, 2019

A federal appeals court on Friday has given the EPA 90 days to take action on demands by environmental groups to ban a widely used pesticide.
Groups are hoping that the decision by the U.S. Court of Appeals for the 9th Circuit in San Francisco will mean that the government will soon prohibit the use of chlorpyrifos. The EPA, under the Obama administration, decided to ban it in 2015 after scientific evidence showed the pesticide has the potential to damage brain development in children.

The EPA, however, reversed the prohibition under then-Administrator Scott Pruitt, in a move that was an early step in carrying out President Donald Trump's deregulatory agenda.
The agency now has three months to decide what to do in light of the appeals court ruling. "We are reviewing the court's order and will be taking final action on the administrative objections before the agency within 90 days," EPA spokesperson James Hewitt said in an email to POLITICO.

Environmental groups are hopeful that a ban will soon be in place.

"It is hard to be optimistic when EPA has delayed for a dozen years, but based on the record before the agency, the science and the law, we think that the only thing that EPA can do is ban the use of chlorpyrifos on food," said Marisa Ordonia, an attorney for Earthjustice, one of the groups suing the EPA.

The long-running case dates back to 2007 but the latest phase re-examined a ruling also on the 9th Circuit.

In 2018, three appellate judges of the court ruled that the EPA unlawfully postponed the agency's efforts to ban chlorpyrifos. But in the fall, the 9th Circuit took the rare step of granting the EPA's request to have the full panel of the appeals court rehear oral arguments.

That hearing took place in March, and several judges seemed exasperated by the delays.

"You've had 10 years or more to look at this," one of the judges, Margaret McKeown, told a Justice Department attorney during the hearing. "We've changed administrations, apparently we've changed science — how much more time do you need?"

Seven states and the District of Columbia stood on the side of the environmental groups in the case. But some groups, such as the American Farm Bureau Federation and CropLife America supported the government's decision to life the ban, arguing that chlorpyrifos is necessary to protect crops from pests.

Environmental groups said it's possible that the Trump administration will continue to drag out the case.

"EPA's response to the objections could result in them finalizing the ban that they proposed in 2015, or they could uphold its denial of the 2007 petition and try to justify that decision (despite their own scientists finding that chlorpyrifos is unsafe)," Ordonia said. "Either way, once EPA issues a decision on the objections, we can go back to the court and make our case on the merits for why EPA must ban this toxic nerve agent."

Corteva Agriscience sells the pesticide under the trade name Lorsban. Chlorpyrifos is sprayed by farmers on fruits and vegetables to kill pests, among a total of more than 50 crops grown in the U.S.

"It is long past time to take action to protect people, particularly children, from a highly toxic chemical," Andrew Rosenberg, director of the Center for Science and Democracy at the Union of Concerned Scientists, told POLITICO. "EPA's own science review found the pesticide dangerous but Administrator Pruitt sided with chemical companies to allow its continued dangerous use. Time to redress that wrong."

Liz Crampton contributed to this article.

NBC Los Angeles

EPA has 90 Days to Justify Use of Dangerous Pesticide, Court Rules

https://www.nbclosangeles.com/news/local/EPA-90-Days-Justify-Dangerous-Pesticide-California-508857361.html

Associated Press

Posted: 7:59pm, April 20, 2019

A federal appeals court has given the Environmental Protection Agency 90 days to justify why a widely used but dangerous pesticide should stay on the market.

The 9th U.S. Circuit Court of Appeals on Friday issued the order at the request of a coalition of farmworker and environmental groups. The attorneys general for several states, including California, Washington, New York and Massachusetts, joined the case.

The groups sued after then-EPA chief Scott Pruitt reversed an Obama-era effort to ban chlorpyrifos, which is widely sprayed on citrus fruit and other crops.

Last summer, a three-judge panel of the court ordered the EPA to ban all sales of the pesticide. The court decided to reconsider that ruling with a slate of 11 judges, and those judges Friday gave the EPA three months to respond to the plaintiffs' objections.

Dicamba

Food & Environment Reporting Network

The herbicide dicamba is sparking a civil war in farm country

https://thefern.org/2019/04/the-herbicide-dicamba-is-sparking-a-civil-war-in-farm-country/

Trey Kay, Loretta Williams

Posted: April 21, 2019

In November 2018, FERN, in partnership with Reveal from the Center for Investigative Reporting, published Liza Gross's story of how the Environmental Protection Agency ignored decades of independent science in deciding to approve new and expanded uses of the weedkiller dicamba on soybeans. Now we have the next installment of our dicamba story, a radio version produced by Reveal and reported by Trey Kay and Loretta Williams of the podcast Us & Them. Where Liza's story laid out the case against the EPA, Trey and Loretta show us how the weedkiller has divided farm communities in Arkansas—and how that division is likely to only get worse as the 2019 growing season unfolds.

The root of the conflict stems from dicamba's ability to drift off-target and damage crops and other plants. When it approved the herbicide, EPA had ignored science that warned of such an outcome. In 2017-18, dicamba drift was responsible for damage to an estimated 5 million acres of soybeans in 24 states, and an untold number of specialty crops and wild plants. It was an agricultural disaster that could have been averted, and one that is ongoing, in the courts and in the fields. The dicamba debacle pits farmers who use the weedkiller against those who don't, and has already resulted in the death of one farmer who complained about drift and was shot by a worker on a neighboring farm.

Glyphosate

Northern California Record

Married couple testifies in third Monsanto cancer case

https://norcalrecord.com/stories/512448840-married-couple-testifies-in-third-monsanto-cancer-case

Rich Peters

Posted: April 22, 2019

OAKLAND – Plaintiffs Alva and Alberta Pilliod testified in an Oakland courtroom last week, claiming that the common weed killer Roundup was a substantial factor in causing them both to contract non-Hodgkin's lymphoma.

Alva was the first one to be diagnosed with cancer in 2011. Just four years later his wife, Alberta, was diagnosed with the same cancer. Both are in their 70s.

"The doctor gave me 18 months to live at most," she told the jury in the Alameda County Superior Court.

The Pilliod trial is the third high-profile case against Monsanto in which a plaintiff has alleged that the company's product caused their cancer and failed to warn of the dangers posed by its active ingredient glyphosate.

In what was an emotional testimony, Alberta described the pain and anguish that she has been through over the last four years as she has battled her cancer and the effect that non-Hodgkin's lymphoma has had on her life.

"It's kind of embarrassing the way I walk now," she said. "I wobble all over. I'm dizzy all the time. I fall a lot."

The couple claims that they used up to a gallon of Roundup per week around four separate residential properties over the course of 30 years – finally stopping in 2016 after coming across an article that stressed the potential dangers of glyphosate, linking products with the ingredient to the same rare form of cancer that they both had.

"I read articles about non-Hodgkin's lymphoma and found a common denominator," explained Alva. "It was the weed killer we were using. I was quite worried about it."

A key focus within the trial has been the idea of dermal dose exposure and response. Plaintiffs' attorneys Michael Miller and Brent Wisner have stressed the notion that the more the product is used, the higher the glyphosate dosage and, in the end, the higher the chemical response.

Both attorneys have continued to allege that every week their clients were "getting a dose of glyphosate."

Expert witness Dr. Dennis Weisenburger grabbed headlines earlier in the trial when he claimed cancer risks rise at an alarming rate with the kind of steady dose of Roundup that the Pilliods were subjected to for 30 years.

"Your risk is increased two-fold for non-Hodgkin's lymphoma if you used it more than two days per year," said Weisenburger, chair of the pathology department of the City of Hope Medical Center. "The more you used it, the more your risk is increased. Being exposed a little bit didn't increase your risk, but being exposed more increased your risk."

Bayer, which acquired Monsanto last year, has maintained that its product is safe and needs no warning label. In a recent marketing effort in wake of two lost lawsuits with thousands of other cases to follow, the company vowed transparency.

"Bayer welcomes a science-based discussion with regulators around the globe, the international research community, as well as with consumers on the safety profile of glyphosate," the company said April 8 in a statement. "To that end, all 107 Bayer-owned glyphosate safety study reports that were submitted to the European Food Safety Authority (EFSA) as part of the substance authorization process in the European Union (EU) are now accessible on Bayer's dedicated transparency platform.

"In doing so, the company delivers on its commitment to more transparency, including its crop protection safety studies following the acquisition of Monsanto. Many of these and other similar studies were submitted to and evaluated by the U.S. Environmental Protection Agency during its own risk assessment of glyphosate," it said.

The trial will continue this week as Monsanto's attorneys will get a chance to bring in their expert witnesses for testimony in the company's defense. The case is expected to last into early May.

Last month, plaintiff Edwin Hardeman was awarded $80.5 million in damages, following last year's verdict in the case of Dewayne Johnson in which he was awarded $78 million.

Insecticides

The Epoch Times

Someone Is Mixing Insecticide into Meat and Poisoning Pet Dogs and Wildlife in Wisconsin Counties

https://www.theepochtimes.com/someone-is-mixing-insecticide-into-meat-and-poisoning-pet-dogs-and-wildlife-in-wisconsin-counties_2889867.html

Venus Upadhayaya

Posted: April 22, 2019

Family pets, coyotes and many types of wildlife have died in three Wisconsin counties since December after eating meat mixed with insecticide.

Authorities have issued a warning informing people that someone is intentionally poisoning meat and leaving it for animals to feed on near the Upper Peninsula's border with Wisconsin, reported Michigan Live (MLive).
"Dog deaths have occurred in Bayfield, Marinette and Florence County; however, it is unknown if other counties could be involved," said a recent statement from the Wisconsin Department of Natural Resources, the U.S. Fish and Wildlife Service, and the U.S. Forest Service.

"In addition to the unfortunate poisoning of these family pets, investigators also found dead coyotes, weasels, raccoons, and one wolf that they suspect also were poisoned. Lab tests are underway to confirm the cause of death in these wildlife cases," the statement said.

The deaths occurred on public lands that include lands managed by the U.S. Forest Service and Goodman Timber Company, according to the statement released by the Marinette County Sheriff's office on Facebook.

Clark Cate, a resident of McAllister in northeastern Wisconsin lost his 3-year-old German short-haired pointer Ava to poisonous meat this spring.

Cate was walking Ava with a hunting partner when he saw her eating something. "About 10 minutes later she staggered out into the road and started convulsing and hyper-salivating and died in my arms about 20 minutes later," Cate told Wisconsin Public Radio.

Cate took Ava and a sample of the poisonous food to a veterinarian and it is suspected that the dog died due to some fly bait.

"It was mixed in with hamburger and thrown in the woods," said Cate. "Everybody's surmising that it was put out to kill wolves."

Capt. Dave Zebro, northern region conservation warden for the Department of Natural Resources(DNR) said they can't yet validate the cause, however, they suspect it to be pesticide carbofuran.

"It's used a lot in farming for insects, and we've seen it used in potato farmers and stuff like that," he said.

A reward of $1,600 is being offered for any information that leads to the person responsible for Ava's death, according to MLive.

Lt. Andrew Lundin, conservation warden in northeastern Wisconsin said as of now three cases of dead dogs, several coyotes, a raccoon, a wolf, and a weasel have been reported.

"We're in the process of working with U.S. Fish and Wildlife on having the species that we've been able to recover, including the most recent domestic dog tested through the U.S. Fish and Wildlife Laboratory," said Lundin. "That's where we're going to be able to, hopefully, determine that there is a connection or there's not."

Authorities have sought public help in resolving the situation. "The Wisconsin Department of Natural Resources, U.S. Fish and Wildlife Service, and the U.S. Forst Service are seeking the public help in solving several cases involving the poisoning deaths of domestic dogs and wildlife since December," said the statement.

The sheriff's office has advised people to keep their dogs on a leash and call the DNR tip line at 1-800-TIP-WDNR or report online if they see any suspicious activity.

The High Plains Journal

Canola fields are a-buzz over BMPs

https://www.hpj.com/crops/canola-fields-are-a-buzz-over-bmps/article_f98b20ec-6211-11e9-a1e2-4736b9d06aae.html

Jennifer Latzke

Posted: April 22, 2019

If you stand quietly in a canola field that's bursting with blooms, and listen carefully, you can hear the buzz. It's the sound of domestic bees and wild pollinators gathering pollen and nectar and that's music to canola farmers' ears.

Courtesy photo by Mamun Srizon, https://unsplash.com.

In February 2019, the U.S. Canola Association, in partnership with the Honey Bee Health Coalition, issued a list of "Best Management Practices for Pollinator Health in Canola Fields." The list and the accompanying research paper looks at the steps of canola production and offers farmers guidance on how to manage their fields for not only canola yields, but also the pollinators that rely on them as a food source.

A mutual love

Rob Rynning, a canola farmer in Minnesota, is the current USCA president. Over the past couple of years, he said pollinator health has been a topic of concern for canola farmers because of the symbiotic relationship between the crop and bees.

"The big thing is to get growers to understand that we have to take care of this upfront and be proactive." —U.S. Canola Association President Rob Rynning

Bees love canola because its flowers are loaded with nectar, with a sugar profile ideal for honey production. Canola also has an abundance of pollen that has a good balance of amino acids, protein and fats critical to bee health. And because canola fields bloom for longer periods than other flowers in the environment, bees can spend up to a month gathering nectar for their hives and without traveling long distances.

Beekeepers say that domestic hives do very well on canola pollen and nectar because of the nutrient density. Hives can expand and reproduce very rapidly on canola over other crops, like almonds for example that have very little nutrient value in the nectar.

On the crop side, pollinators are key to hybrid canola seed production, since the hybrid female plant is sterile, it doesn't produce its own pollen. To create hybrid seeds that a farmer plants, the pollen must be moved from other male plants mechanically, and pollinators do that.

Pollinators also are great harvest help, as they increase seed germination, reduce green seed counts that can be discounted at harvest, and they raise the oil content of canola, according to USCA. When bees pollinate canola fields, the crop has more uniform flowering, and sets pods earlier. This reduces bloom time, and plumps up the canola seed weight, puts more pods on each plant with more seeds per pod. A healthy pollinator community is really the farmer's best business partner.

A balance of needs

But balancing the economic and agronomic needs of canola farmers with the protection of beneficial pollinators is tough.

"It gets mentioned in a lot of our meetings," Rynning explained. "And yes, there are concerns for the pollinators. But there have been threats to the crop protection products we have to use in canola.

"One example, is our neonicotinoid seed treatments," Rynning continued. "It's really important for canola because it's the only thing we have available to protect the really small plant as it is coming up from sucking insects like crucifer flea beetles and striped flea beetles." These insects can zero out an emerging stand of canola in as little as three days, at great cost to the grower.

Keeping neonicotinoids available to growers as a crop protection product can literally mean the difference between a healthy growing canola crop and a failed one.

"The big thing is to get growers to understand that we have to take care of this upfront and be proactive," Rynning said. It shows that farmers are trying to work toward a compromise to any governmental regulators who might have the products in the crosshairs. And it helps them keep their farming partners—the pollinators—happy and healthy.

The process

It just made sense to partner up with the Honey Bee Health Coalition to create these BMPs, Rynning said. The full paper can be found on USCA's website, *www.uscanola.com*, under the Crop Production/Pollinator Health tab. Or you can find it directly at *http://www.uscanola.com/site/files/956/160174/526587/796193/HBHC_Canola_030119.pdf*.

"Down the road, when we go up to Capitol Hill, we can show that we have these and that we're working with the beekeepers and their association for both the bees and the crop."—Rob Rynning

A technical committee of canola and beekeeping industry professionals, environmental agency representatives, and governmental and university researchers looked at existing BMPs for other crops, geographies and beekeeping. Then, they identified points in the crop growth cycle that could be adjusted to improve pollinator health and survival.

Jay Bjerke, one of the lead authors of the BMP paper, is a retired canola product manager and production leader in the private sector, having worked for both Monsanto and Land O'Lakes canola teams.

"One of the things I wanted to emphasize in the document is that, yes, we're all concerned about honeybees, but there's a tremendous number of species of wild bees that are also adversely affected by decisions farmers make or don't make," Bjerke said. "The goal is to protect both because they are equally important in terms of pollination activity."

Being a good neighbor

Even with decades of canola production knowledge, Bjerke said he was surprised to learn from pollinator expert committee members that there are production practices that are beneficial to wild bees, such as no-till.

"If you're doing a Roundup Ready system, for example, and leaving the stubble in the fall, it's 10 times better for the wild bees than tilling up that ground," Bjerke said. "It's because wild bees almost all nest in the ground. So their nests need to be undisturbed through the winter. Otherwise, you dig up the larvae and stop their process." No-till has long been touted for other agronomic benefits, but he'd just never thought it could help wild pollinators, he said.

One issue that the committee had to address was that both spring and winter canola is grown in the U.S., which means that production practices happen at different times of the year depending on the geography of the farmer.

"Part of the reason we wrote the document by crop stage is that in winter canola there are lots of times that there are more pests present in the field when it's in bloom than in spring canola," Bjerke said. "We shied away from saying 'Don't ever spray blooming canola' because if a farmer has a choice of spraying and controlling damaging insects and saving his crop, or not spraying, he's going to spray. But even in those instances there are plenty of things a farmer can do to lesson the damage."

For example, in this instance, the farmer should contact any local beekeepers who have hives near those fields and notify them that he's going to spray, Bjerke said. Then, if he sprays later in the day, around sunset, the bees have returned to their hives for the most part so that fewer bees are exposed to the spray, he added. And, the farmer has a choice of those pesticides that have much less toxicity to bees than to the insects he's trying to control.

Proactively making a difference

By taking the proactive step to create these BMPs, Rynning emphasized that canola growers can show to regulators and Washington, DC, they are working toward solutions for the industry and beekeepers.

"Down the road, when we go up to Capitol Hill, we can show that we have these and that we're working with the beekeepers and their association for both the bees and the crop," Rynning said. "There's already serious issues in Europe where they've lost the use of neonicotinoids in their edible rapeseed and the industry is going down rapidly.

They can't keep their crop from getting wiped out by pests and some have had to replant two to three times and have had to apply emergency sprays time and time again." He said in his region of Minnesota, if he couldn't use neonic seed treatments and instead had to rely on topical sprays, he'd have to go over his crop three to four times with foliar applications, or replant the entire crop and lose money.

Bjerke said he hopes these BMPs provide farmers an opportunity to start conversations with their local beekeepers and start a process of being better business partners with the pollinators.

"I think my hope is that farmers should give this document a good read and the majority will see that it's relatively minor changes to their programs that can make a big benefit to the pollinators," Bjerke said.

Science Daily

Neonics hinder bees' ability to fend off deadly mites

https://www.sciencedaily.com/releases/2019/04/190422112818.htm

University of Guelph

Posted: April 22, 2019

A University of Guelph study is the first to uncover the impact of neonicotinoid pesticides on honey bees' ability to groom and rid themselves of deadly mites.

The research comes as Health Canada places new limits on the use of three key neonicotinoids while it decides whether to impose a full phase-out of the chemicals.

Published in the *Nature* journal *Scientific Reports*, the study revealed that when honey bees are infected with varroa mites and then regularly exposed to low doses of a commonly used neonicotinoid called clothianidin, their self-grooming behaviour drops off.

Without that self-grooming, bees are susceptible to mites that can also carry viruses that can quickly kill, said lead author Nuria Morfin Ramirez, who completed the research along with Prof. Ernesto Guzman, School of Environmental Sciences, as part of her PhD.

"When bee colonies began to collapse years ago, it became clear there wasn't just one factor involved, so we were interested in whether there was an interaction between two of the main stressors that affect bees: varroa mites and a neurotoxic insecticide, clothianidin," said Morfin.

"This is the first study to evaluate the impact on the grooming behaviour of bees."

Neonicotinoids, or "neonics," are the most commonly used insecticides in Canada. They are coated on canola and corn seeds or sprayed on fruit and vegetable plants and trees. But they have also been linked to honey bee colony collapses.

Varroa mites are also contributing to colony collapses and have been associated with more than 85 per cent of colony losses.

The mites kill bees by slowly feeding off their body fat and hemolymph (blood), and can also transmit a virus called deformed wing virus (DWV). One of the only ways bees can protect themselves is to groom aggressively and brush the mites off.

The researchers wanted to know whether the two stressors of pesticide exposure varroa mites were working together to contribute to bee deaths. The research team used bees from U of G's Honey Bee Research Centre and exposed them to a widely used neonic clothianidin, either on its own or along with varroa mites.

They experimented with three doses of clothianidin, all similar to what the bees would experience while feeding on flower nectar of neonic-treated crop fields, but all low enough to be considered sublethal.

"What we found was a complicated interaction between the mite and the pesticide that decreased the proportion of bees that groomed intensively, and affected genes associated with neurodegenerative processes," Morfin said.

Bees exposed to medium level doses of the neonic showed no changes in grooming behaviour, but when they were also introduced to varroa mites, the proportion of bees that groomed intensively was 1.4 times lower compared to the bees exposed to clothianidin alone.

When exposed to the lowest dose of the pesticide, the proportion of bees that groomed significantly dropped. The lowest dose was also linked to an increased level of deformed wing virus -- an effect not seen at the higher doses.

"These results showed a complex and non-additive interaction between these two stressors," said Guzman. "This study highlights the importance of reducing stressors that bees are exposed to, to reduce the risk of disease and consequently colony mortality."

PFAS

The Intelligencer

Five years after discovery, PFAS concerns continue in Bucks and Montgomery counties

https://www.theintell.com/news/20190422/five-years-after-discovery-pfas-concerns-continue-in-bucks-and-montgomery-counties

Jenny Wagner, Kyle Bagenstose

Posted: 5:00am, April 22, 2019

It's been half a decade since nationally high levels of toxic chemicals were found in Bucks and Montgomery County communities. But despite actions taken by the federal government, residents and town leaders say chemical concerns are still slipping through the cracks, impacting finances, the area's reputation, and potentially, public health.

Steve Vernik's house sits empty. It's gone unsold for months, a pariah on the real estate market.

There's little doubt in his mind it's because of the toxic chemicals in his drinking water, bubbling up from a private well on the property, located at the southern tip of Warwick. After drinking bottled water for more than two yearsand waiting for someone to take responsibility for the contamination, he gave up and moved his family seven months ago to a new home, five miles away.

A second mortgage is the price they pay for peace of mind.

"This is one of the biggest financial hits I ever would have imagined I'd take in my life," Vernik said. "Paying two mortgages and having to get a swing loan to get out of here, and all these other things, just brought me down to my knees in a sense. At the same time, I can't risk my family's health."

Vernik personifies the real-world costs of a chemical contamination that continues to fester, five years after it was first discovered along the border of Bucks and Montgomery counties. The source, or at least the largest known source, is a trio of current and former military bases in Warminster and Horsham, where firefighting chemicals called per- and polyfluoroalkyl substances (PFAS) were used for decades.

By any normal measure, the military's response to the contamination has been substantial. The Navy says it has spent $58 million, $35 million of of which was used to filter or provide alternative water for all drinking water sources that exceed a 70 parts per trillion (ppt) safety limit recommended by the Environmental Protection Agency. That includes 15 public water wells in Warminster, Warrington and Horsham, along with one supply well on the Horsham Air Guard Station and about 250 private residential wells.

The Navy also has poured $23 million into environmental testing and studies, and has taken some interim measures to try and stop the chemicals from leaving the the former Naval Air Station-Joint Reserve Base Willow Grove and Naval Air Warfare Center Warminster. The Air National Guard has also spent millions dealing with contamination at the Horsham base.

But PFAS aren't normal chemicals. Synthetically engineered to knock down fuel fires, they're extremely difficult to get rid of. They stick around for decades, traveling farther and wider than expected, and accumulate inside the bodies of those who consume them.

Yet the Department of Defense, both locally and at other PFAS sites across the country, has largely kept its wallet closed for any situations that don't involve clear cut drinking water exposures above the EPA's safety limit. After several states created regulations to force the military to do more, including increased environmental cleanup, the military pushed back by filing lawsuits or saying it had legal immunity from state orders.

Local officials such as Chris Crockett, chief environmental officer with private water utility Aqua PA, say that approach means PFAS problems are slipping through the cracks in Pennsylvania.

"If you don't stop it at the source, this stuff goes everywhere," Crockett said. "It goes into the ground, somebody pulls it out in their private well, it ultimately makes it down to the next community's wastewater discharge, which then makes it into a stream, which then makes into the next drinking water intake of the next community. So we really want to contain this so it stops hopscotching all around."

Crockett is anxiously awaiting a study announced two years ago by the Navy and U.S. Geological Survey to analyze the area's waterways and establish how far PFAS had traveled from the bases. By conducting its own PFAS sampling, Crockett says Aqua already believes the chemicals are traveling 22 miles through a network of streams and creeks to a drinking water intake along the Neshaminy Creek in Middletown. A treatment plant there processes 11 million gallons a day to serve to 38,000 Aqua drinking water customers.

Prior to treatment, the chemicals from the Neshaminy reached as high as 67 ppt in July 2017, just below the EPA health limit.

"We know that it lasts a century in the environment," Crockett said. "In the time it takes to go 22 miles, nothing is going to happen to it."

The company has also been hit with high PFAS levels in groundwater wells in Hatboro, which neighbors Horsham, and even in Upper Dublin, some five miles away from the nearest base, with no obvious connections through surface waterways.

"It's hard to tell what the influence was," of the bases, Crockett said. "How far would that move in 50 years? It's something we wish we had that information from USGS to see."

In an email, USGS hydrologist Lisa Senior said that the agency expects to release preliminary results of the study by the end of 2019.

"This work is projected to continue for some time, with additional data, analyses, and findings to come," Senior said."The USGS activities do not include measurement of PFAS concentrations in groundwater or streams, which are being done by others."

Vernik's home is closer to the contamination than Aqua's supplies, just about three miles from both the Horsham and Warminster bases. But that's still distance enough to also be on the outside looking in. The military has not claimed responsibility for PFAS contamination in his Hartsville neighborhood, where six other homes also exceeded the EPA's health advisory.

The military has instead pointed to the nearby Hartsville Fire Station, suggesting firefighting foams containing the chemicals may have been used there. The EPA has sampled the property's soil, and according to results obtained by this news organization, found perfluorooctane sulfonate (PFOS), the primary PFAS in firefighting foams, at 47 and 29 parts per billion in two areas.

Those levels are above typical PFOS soil levels of about 1 ppb, but are well below levels often seen in areas of heavy firefighting foam use, which can reach into the thousands of ppb. According to an environmental report from the Willow Grove base last year, soil levels reached as high as 98,000 ppb for PFOS near a former fire and rescue building off Route 611, more than 2,000 times higher than the levels found in Hartsville.

In an email sent by Rick Rogers, an associate director for drinking water in the EPA's regional offices, and obtained by this news organization, Rogers called the Hartsville results "inconclusive," because the agency does not have a firm grasp on how PFOS moves from soil to groundwater. Terri White, the EPA's regional deputy director for communications, told this news organization the EPA was scheduled to test groundwater below the fire station this month to learn more.

"EPA has not made a determination because there is insufficient data. EPA is looking into all potential sources," White wrote.

State Sen. Maria Collett, D-12, of Lower Gwynedd, is not impressed with anyone involved, adding she believes the EPA also shares blame for not putting its foot down.

"That's where we're at, letters going back and forth with blame-shifting and finger-pointing, instead of anyone actually taking responsibility," Collett said.

Horsham in limbo

Problems remain even at the epicenter of the contamination.

William Walker, township manager of Horsham, says collateral damage from the issue is extensive. Before the PFAS crisis hit, the township was slated to receive 860 acres of the former Willow Grove base from the Navy. In 2012, the township formed the Horsham Land Redevelopment Authority to map out plans for the unprecedented turnover of land, which is larger than all of the township's existing open space combined.

Plans call for housing, a school, a festival ground, a hotel and office park, and even a town center, netting as much as $4.7 million in new municipal taxes, which would represent a 22% increase over the town's current annual revenue of $22 million.

But all that was put on hold when the PFAS issue broke open in 2014. Last year, the Navy excavated about 3,000 tons of the most highly contaminated soil from the former base and tried to dispose of it, but was turned down by a New Jersey

landfill. As of late winter, the soil sat in piles under a tarp on the base, as the Navy searched for a hazardous waste landfill to take it, even though the chemicals remain unregulated.

Horsham is in no hurry to make contaminated soil its problem.

"Redevelopment is really important to us," Walker said. "But we're not going to move forward and accept any land until we know it's clean ... we're not going to sacrifice public health for development."

The problems go even deeper, striking at the heart of Horsham as a desirable, prospering community. In 2011, the township was named one of the top 100 places to live in America by CNN Money Magazine, and climbed into the top 50 in 2013.

The following year, just as the contamination was discovered, Horsham was also named one of the top places to buy a home in Pennsylvania and among the "Top 10 Cities on the Rise" in the state by a prominent personal finance website.

Now, Walker says, raters like CNN have moved on.

"The last time we talked with them they had said, 'You have an issue in your town and that's the base,'" Walker said. "Nothing's happening."

Credit rating agency Moody's has taken notice, too. While the town has kept its Aa1 credit rating, the second highest, "Moody tells us we would have triple 'A' if the base wasn't just sitting there," Walker said.

There are other fiscal impacts for the area. Concerned that its customers could have been drinking and building up PFAS in their bodies for decades, and skeptical of the EPA's 70 ppt advisory as other scientists called for lower standards, the Horsham Water and Sewer Authority approved a plan in 2016 to remove the chemicals entirely from its water supply.

With the Navy only agreeing to buy filters for five wells that exceed 70 ppt, the authority decided to pay its own way to filter five more and also buy replacement water from the neighboring North Wales Water Authority. In 2016, Horsham was awarded a $10 million, taxpayer-funded state grant to help with costs, but still faces about $1.2 million in annual costs to keep the water clean of any PFAS, according to business manager Tina O'Rourke.

The plan also has a troubling downside. At the heart of contamination on the former Willow Grove base, groundwater testing has shown PFAS in excess of 300,000 ppt, or more than 4,000 times the EPA advisory level for drinking water. Without on-site cleanup or pumping, O'Rourke worries the authority's wells, located off the bases, will increasingly draw the contaminated plume outward and under the community's feet.

"Are we pulling that water?" O'Rourke asked during a recent interview. "A concern of mine would be how quickly they could start to actually perform some kind of remediation."

Exacerbating the problem is that military records and accounting appear to show about 140 private well owners in the impacted communities have PFAS in their wells between 40 and 70 ppt. That means their water is slightly below the EPA advisory, but that the military won't pay to hook their homes into the nearest public water system.

In Warminster, municipal authority manager Tim Hagey says costs have also added up after the utility implemented its own zero-tolerance plan for the chemicals. Originally, the Navy verbally agreed to pay for filtration on six public water wells, Hagey said, but later reneged on two that are located not far from Vernik's home in Hartsville, after the wells dropped below 70 ppt.

The authority initially estimated that putting filters on all its remaining wells would add up to $18 million in costs. Hagey says the authority is first piloting a study using synthetic resin filters in place of carbon, which would be more economical. How much Warminster will ultimately pay is yet to be determined.

"We're hoping to spend significantly less than that, if we're permitted to use resin only," Hagey said.

Limited cleanup occurring

While military officials say robust cleanup efforts can't begin until the contamination is studied further, they have taken some efforts to stem the flow of PFAS from the bases.

A primary point of interest is contaminated water leaving the northern part of the Air Guard Station and former Willow Grove base, which environmental testing has shown dumps thousands of parts per trillion of PFAS into Park Creek. The waterway then connects to the Little Neshaminy Creek, which runs right by Hartsville on its way to the main Neshaminy. Municipal officials say there's some indication the Little Neshaminy might leak PFAS into the groundwater near Hartsville, potentially impacting homes like Vernik's. Asked about the possibility, Navy officials referred questions to the USGS.

In 2017, the Navy capped artesian wells near the northern boundary of Willow Grove and attempted to seal up nearby stormwater outfalls. Both the Navy and Air National Guard have expanded retention basins in the area, and the Air Guard even contracted with the Warminster authority to install a temporary treatment system to filter water leaving the base.

Both bases have also used cameras to inspect their sewer lines to identify and repair areas where contaminated groundwater could be infiltrating. At the Willow Grove base, the Navy is beginning a pilot study of a groundwater treatment system, and at the former Warminster base, it added carbon to an existing groundwater treatment system to catch PFAS.

Municipal officials give them some credit, with Walker saying he thinks the military's local environmental managers are hamstrung by national policies. He says they've even stuck their necks out to take actions like the soil removal.

"DOD didn't tell them to do that. EPA didn't tell them to do that," Walker said of the efforts of the bases' local managers. "I think where a lot of the frustration comes from, is Washington and Harrisburg."

Yet municipal officials also say the work to date is a proverbial drop in the bucket.

For example, the Air Guard admits its water filter is quickly overwhelmed during storms, and that contaminated groundwater leaks back into the runoff after leaving the base. The Navy's pilot filter will pump just 20 gallons a minute, according to O'Rourke, and Hagey said the Navy's groundwater treatment at the Warminster base adds up to only about 200,000 gallons per day, equal to just one of his authority's public wells.

Officials say the efforts to cap wells and outfalls mean the PFAS contamination is just pushed back beneath the surface, its destination unknown.

"The water has to go somewhere," Crockett said. "If it isn't going to the creek, where is it going?"

For its part, the Navy defended its activities, saying it has worked with state and federal regulators and has complied with applicable laws. Officials from the Air National Guard did not respond to an inquiry by deadline.

"The Navy takes this responsibility seriously and wants to ensure that it completes this action correctly," Willie Lin, environmental coordinator for the Navy, wrote in an email. "The Navy believes it has implemented the base cleanup effort with an appropriate level of care and concern for all stakeholders, using all available technologies without established regulatory clean-up standards."

For all his troubles, Vernik empathizes with the military on the scope of the PFAS problem it faces.

"I'm part of a situation that's too big to even solve, which is part of the reason why I can't be so mad at any particular person, because it's so bad," Vernik said.

But just like the local community leaders, a little dose of empathy isn't a cure for Vernik's water woes.

"The (Navy) has a lot of jets that are worth a good few billion dollars, and they keep getting more," he said. "How about you skip a year of buying four of them, and you take care of this water situation?"

M Live

PFAS found in Saline during investigation across River Raisin watershed

https://www.mlive.com/news/2019/04/pfas-found-in-saline-during-investigation-across-river-raisin-watershed.html

Paula Gardener

Posted: April 22, 2019

Michigan officials are investigating PFAS contamination in a second watershed that feeds into Lake Erie.
The chemicals were found last summer in Saline, southwest of Ann Arbor, where the city's wastewater treatment plant was discharging them to a tributary of the River Raisin.

That's also near a contaminated industrial site, located just steps from the Saline River, that has even higher levels of the unsafe chemicals in groundwater- and they're possibly moving into the river, officials say.

Those discoveries are among the findings of a new study of the entire River Raisin watershed, launched as part of the state's analysis of where the per- and polyfluorinated chemicals threaten ecology and public health. The results of that work, completed this spring, is expected to result in an across-the-board reduction in PFAS along the 1,072-mile waterway in southeast Lower Michigan.
The effort to define concentrations and sources of PFAS across the five counties from Hillsdale to Monroe is the state's "first attempt at the comprehensive story" of PFAS in a Michigan watershed, state officials said.

"The team is using this very integrated approach to look for more subtle, less obvious sources and find ways to drive down how much is found there," said Scott Dean, spokesman for the Michigan Department of Environmental Quality.

The look at the watershed gives a glimpse into how the state is uncovering PFAS contamination and how it's finding the chemicals in varied formats – including river water, ground water and fish.
The report creates a roadmap for locations of PFOS, one type of the chemical that is regulated in the state's waterways – and signals next steps for state environmental investigators. The chemical is linked to cancer and other adverse health effects.

The data also leaves questions about the source of PFAS near four cities – Tecumseh, Adrian, Deerfield and Dundee. In each case, the origin of PFAS is "still unknown," according to the report.

The research started in summer 2018. It includes sampling data from Jackson, Hillsdale, Washtenaw, Lenawee, and Monroe counties. Tests on surface water, groundwater, fish, drinking water and wastewater were used to glean an overall sense of the watershed contamination, said Joe Bohr of the Michigan Department of Environmental Quality's surface water assessment section.

No dramatically high level of any PFAS compound was found in the River Raisin, in contrast to the situation in the Huron River watershed. That body to the north – which also feeds to Lake Erie – remains under investigation after a factory was found to be discharging PFOS into Wixom's wastewater treatment plant at a level reaching more than 2,300 times what's allowed in surface water, or 12 parts per trillion.

Instead, the contamination along the River Raisin "could be from multiple small sources," Bohr said.

One puzzle to MDEQ researchers is the timing: Three of the four highest surface readings for PFOS were taken in June 2018, but subsequent tests showed significantly lower levels.

The highest findings and their test dates were:

460-ppt southeast of Tecumseh in June 2018 (0.8-ppt in August)

230-ppt southeast of Milan in August 2018 (no later test results)

160-ppt in Deerfield in June 2018 (5.1-ppt in August)

130-ppt in Saline in June 2018. (7-ppt in August).

Beyond the surface water testing, PFOS also was found flowing from in the Saline wastewater treatment plant effluent at 33-ppt. That level was enough for the state to issue a violation order to the city, prompting more investigation of sources. So far, the Faurecia factory in property owned by Ford Land Development Co. is the only probable source in the city, with manhole tests showing a range of 20-ppt to 280-ppt of PFOS coming from the plant.

Other tests at a long-closed industrial site in Saline showed PFOS contamination in the groundwater. One monitoring well at the former Universal Die Cast site showed a concentration of 3,030-ppt. The site is next to the Saline River and just upstream of the 130-ppt surface water sample.

The river is the primary drinking water source for Adrian, Blissfield and Deerfield, and it's the emergency backup source for Monroe.

Knowing that the river water is used for drinking water "definitely made it rise to the top," Bohr said of the decision to analyze the watershed.

Municipal water customers are not affected by the chemicals, as finished water tests showed each was "non-detect" for PFOS and PFOA. Tests of the "raw," or untreated water showed no PFOS for Adrian or Deerfield; and 4-ppt combined PFOS and PFOA in Blissfield.

The state will continue to fine-tune its approach to PFAS contamination along the waterway, said Carla Davidson of the DEQ.

"The report shows we have more work to do," she said.

That will include working with the cities of Adrian, Tecumseh, Blissfield, Deerfield, Monroe, Milan and Saline as they work with industrial wastewater customers to stem PFAS from entering each facility.

While Saline's wastewater plant had the only enforceable amount of PFOS, each city had measurable amounts, ranging from 5.1-ppt in Blissfield to 8.3-ppt in Monroe.

The wastewater discharges also showed total PFAS ranged from 50.3-ppt (Monroe) of the two dozen compounds for which the state tests to 142.9-ppt (Tecumseh).

Meanwhile, the state also plans more fish testing due to PFOS creeping into the existing fish advisories issued for the miles of waterways that make up the watershed.

People should not be eating carp downstream of Dundee because of PCBs, dioxin, mercury, and DDT, according to the states.

More recently, both largemouth and smallmouth bass have enough PFOS to warrant an advisory of no more than 2 meals per year if caught downstream of Dundee. Mercury and dioxins also are at health advisory levels.

And people should not eat more than four meals per month of rock bass caught downstream of Dundee. Advisory-level amounts of mercury, PCBs and PFOS all are found in that fish.

The River Raisin Watershed Council started the year by learning more about PFAS and getting ready to answer questions about it, said Stephen May, executive director.

"The conversation is just starting," he said early this year. "We want to be available and proactive."

May said the watershed is challenged by the agricultural land use throughout at least two-thirds of its length.

"The upper reaches are all fairly clean," he said. "... As it travels through the system, there are always going to be concerns with phosphorous and nitrates (due to farming)."

Significant phosphorous reductions have been recorded since 2008, he said, and the RRWC received a three-year grant to focus on improving the farm effects on the watershed.

More PFAS tests on the state's watersheds will follow the River Raisin effort from the state's Michigan PFAS Action and Response Team, Dean said. Future efforts will focus on the Flint River, Kalamazoo River and Huron River.

"This allows us to consider the effect of the whole instead of individual parts," Dean said.

NPR

Scientists Dig Into Hard Questions About the Fluorinated Pollutants Known as PFAS

https://www.npr.org/sections/health-shots/2019/04/22/708863848/scientists-dig-into-hard-questions-about-the-fluorinated-pollutants-known-as-pfa

Rebecca Hersher

Posted: 5:01am, April 22, 2019

Scientists are ramping up research on the possible health effects of a large group of common but little-understood chemicals used in water-resistant clothing, stain-resistant furniture, nonstick cookware and many other consumer products.

Per- and polyfluoroalkyl substances are generally referred to by their plural acronym, PFAS. PFAS are resistant to water, oil and heat, and their use has expanded rapidly since they were developed by companies in the mid-20th century. Today, PFAS' nonstick qualities make them useful in products as diverse as food wrappers, umbrellas, tents, carpets and firefighting foam. The chemicals are also used in the manufacture of plastic and rubber and in insulation for wiring. In short, they are all around us. And as a result, they've found their way into the soil and, especially in some regions, into our drinking water.

"We're finding them contaminating many rivers, many lakes, many drinking water supplies," says Linda Birnbaum, director of the National Institute of Environmental Health Sciences and the National Toxicology Program. "And we're finding them not only in the environment, but we're finding them in people."

"Essentially everyone has these compounds in our blood," she explains.

That's in part because PFAS don't break down easily — a quality that has earned them the nickname "forever chemicals." Some varieties have been found to stick around in the human body for years, if not decades. Others accumulate in soil or water, creating a continuous source of exposure.

Despite their ubiquity, however, scientists know relatively little about the health effects of most types of PFAS.

No PFAS legal safety limit yet

"Despite their everyday use, the body of science necessary to fully understand and regulate these chemicals is not yet as robust as it needs to be," acknowledged the assistant administrator of the Environmental Protection Agency's Office of Water, David Ross, at a congressional hearing on PFAS in March.

This year, the EPA signaled that it is considering setting a legal safety limit for some PFAS in drinking water, but it hasn't acted yet.

Meanwhile, public spending on research of the chemicals has gone up. The National Institutes of Health, the Environmental Protection Agency, the Centers for Disease Control and Prevention and multiple state university systems have all increased their funding for PFAS studies in recent years.

"We have more and more of our grantees who are looking at PFAS in their studies — both mechanistic studies and animal studies," as well as epidemiological studies that analyze large populations, explains Birnbaum. But the work is slow going.

"These are a very broad class of chemicals — probably 5,000 or more — and it seems like new ones are being produced all the time," she says.

In most cases, U.S. chemical regulations do not require that companies prove a chemical is safe before they start selling it. It's up to the EPA to determine whether a substance is unacceptably dangerous and under what circumstances, and typically such analyses begin only after public health concerns are raised.

As a result, "we really don't know much about the great majority of these chemicals," says Birnbaum.

One approach that scientists supported by the National Institutes of Health are taking is to analyze hundreds of PFAS varieties at once. The goal is to identify subgroups of PFAS with similar characteristics, so scientists won't have to do a battery of toxicity tests on each individual chemical.

"There's no way that we'll ever be able to test 5,000 or more PFAS," Birnbaum explains.

Early studies suggest some health risks

Some of the most large-scale PFAS epidemiology research in the U.S. was conducted by a science panel starting in 2005 as part of a class action lawsuit against the chemical company DuPont. The case alleged that thousands of people in West Virginia and Ohio were hurt by industrial releases of a PFAS chemical called PFOA.

The panel — made up of three career epidemiologists whom both sides of the court case agreed to have evaluate the scientific evidence — found a "probable link" between long-term exposure to the chemical and certain medical conditions, such as kidney cancer and thyroid disease.

Additional studies of both humans and rodents have found similar associations.

"I think we have growing information that at least some members of this class can be problematic," says Birnbaum.

Those findings have raised a host of new questions, first about mechanism: How do PFAS chemicals act in the body? It's one thing to see an association between exposure to a substance and disease. It's much more difficult to determine a likely path from chemical exposure to disease symptoms.

"We still don't know the precise molecular ways that they produce toxicity," explains Jamie DeWitt, a toxicologist who studies PFAS at East Carolina University.

For example, DeWitt and others have published studies of both humans and rodents that suggest exposure to one PFAS chemical — PFOA — can suppress the body's response to vaccines.

"I'm pretty sure that a type of immune cell called a B cell is involved" in that suppression, says DeWitt. "But I don't know why the B cell doesn't produce enough antibody. Is it signaling molecules that say, 'Hey, B cell, make antibody?' Is it

something wrong inside the B cell itself? Is it the amount of energy that the B cell has? These are these molecular mechanisms that we're still trying to figure out."

Knowing those mechanisms for PFOA might help scientists estimate the potential risks of other PFAS that have a similar structure, she says. "Honestly, I think we're still at the very beginning."

At the current rate of research, Birnbaum says, it will take about two years to get a basic handle on the toxicity of the whole PFAS group. But there will still be many questions for both scientists and regulators.

"Realizing that these chemicals have escaped into the environment, how are we going to remediate those problems? How are we going to get rid of these chemicals?" she says.

"A question that we all need to be asking is: What's essential?" she says. "Do we really need it? Are there some places where we need to have this class of chemicals to be safe? But if that's the case, we would like them used in closed systems so they don't escape and end up contaminating the whole world."

Asked to comment on how essential PFAS are, a spokesperson for the FluoroCouncil, part of the main trade group representing chemical companies in the U.S., defended their widespread use in consumer products.
"PFAS are an essential enabling technology that play a vital role in products ranging from lifesaving applications in pacemakers and defibrillators, to the design of lower-emissions automobiles with improved auto safety, to the manufacturing of semiconductors, solar panels and high-performance electronics," a spokesperson for the FluoroCouncil wrote in an emailed statement to NPR.

"The vast differences within the PFAS family of chemistry are not immediately obvious to many people," the statement continues. "While some of the names sound the same, PFAS have differing characteristics, formulations, intended uses, and environmental and health profiles."

Living with uncertainty

While two years is not very long in the world of basic scientific research, it can feel like an eternity to people who are worried about their health. In response to public concern, some states already are taking action on their own, both to regulate PFASemissions and exposure and to gather public health information in communities where the water is known to be contaminated.
"For people who live in areas where one of their drinking water sources has a level [of PFAS] that was high enough to raise concern, there's a really strong demand for information," says Alissa Cordner, a sociologist at Whitman College and one of the organizers of a nationwide PFAS contamination list.
"There's so much uncertainty around what the scale and the consequences of contamination are," she explains, and that uncertainty makes people afraid. "In terms of individuals wanting to know 'What's in my drinking water?' the testing is still prohibitively expensive."

And even when scientists or officials test water in a community, the lack of scientific evidence gathered, so far, about PFAS and health makes it difficult for people to know how to react. Most in-home water filters don't remove the chemicals effectively, according to the CDC.
"I think it's confusing, because you have so many chemicals about which we know so little, other than they're a member of this large class," says Birnbaum. "I think that is confusing, but it's also frustrating. So we're trying to address those problems right now." Regulators, scientists and citizens all agree: Research results can't come soon enough.

Toxic Chemicals

Environmental Health News

Kids in Southwester Pennsylvania are exposed to carcinogenic coke oven emissions at shockingly higher rates than the rest of the country

https://www.bloomberg.com/news/articles/2019-04-22/epa-andrew-wheeler-science-advisory-boardhttps:/www.ehn.org/us-steel-pittsburgh-cancer-2634765539.html

Kristina Marusic

Posted: April 22, 2019

"Kids breathe about four times as much air as an adults, so they have proportionately more of these chemicals in their bodies."

Editor's note: This is the third story in our series on cancer and air pollution in Southwestern Pennsylvania.

PITTSBURGH—Six-year-old Madelina DeLuca was diagnosed with leukemia when she was just 23 months old.

"She had some bruising and we couldn't figure out where it came from," Madelina's mom, Kristin DeLuca, told EHN.

Madelina's doctors did a series of tests, but initially couldn't figure out what the cause was. Eventually the bruising got worse and Madelina developed stomach pain. After several months of uncertainty, they got unusual blood test results, and in November of 2014, Madelina had her first bone marrow biopsy.

"She got a fever after the biopsy, so they kept her in the hospital as a precaution," said Kristin, who has spent her whole life in the Pittsburgh region. "Then it all happened really fast. Her test results came back the next day, she was diagnosed with acute myeloid leukemia, and within two days she had a port in her chest and had started chemo. It was very overwhelming."

In 2015, while Madelina was undergoing treatment, a photo of her embracing another young cancer patient while the two looked out a hospital window at the Pittsburgh skyline went viral. The image was shared around the world and garnered national media attention.

The other girl in the photo was 5-year-old Maliya Jones, also a Pittsburgh resident. Her mother, Tazz Jones, snapped the candid picture and wrote, "This is the perfect example of love" when sharing it on Facebook.

Tazz expressed hope that the girls would stay friends as they got older and have the photo to commemorate the moment they met and the difficulties they'd both overcome.

"Unfortunately," Kristin told EHN, "Maliya passed away from her childhood cancer. Throughout the course of Madelina's treatment, she made a lot of friends who weren't able to defeat it."

After a long, difficult journey, Madelina is now a healthy, happy kindergarten student. She takes ballet and gymnastics, and loves riding her bike, playing outside with her older sister, and swimming.

Kristin is grateful every time another one of Madelina's regular cancer scans comes back negative.

But she refuses to forget what they went through—she still works with families of other kids who are fighting cancer, and raises awareness about the prevalence of the disease among children.

"It's something that happens more frequently than we were first aware of," she said. "Especially, it seems, in the Pittsburgh region."

Southwestern Pennsylvania is, in fact, a hotspot for cancer. Allegheny County, which encompasses Pittsburgh, is in the top 3 percent of all U.S. counties for risk of cancer caused by air pollution, and children, with their still-developing bodies, are particularly vulnerable to cancer risk from exposures to airborne carcinogens.

An EHN analysis of the EPA's most recent National Air Toxics Assessment data shows that kids in Allegheny County are exposed to higher levels of a number of cancer-causing chemicals—including diesel particulate matter, formaldehyde, benzene, arsenic, naphthalene, and in particular, coke oven emissions—than kids in most of the U.S. as a direct result of industrial polluters in the region.

One of these polluters, U.S. Steel's Clairton Coke Works, is responsible for a lot of these airborne carcinogens. The company has dominated headlines lately due to escalating fines for air pollution violations, childhood asthma near the plant, and increasingly tense community protests.

The problem has gotten so bad that environmental groups including Earthjustice, Citizens for Pennsylvania's Future, and the Sierra Club filed a lawsuit against the Environmental Protection Agency (EPA) on April 15 for not properly regulating coke oven emissions across the country, specifically citing ongoing pollution at the Clairton Coke Works as one of the reasons for the suit.

In 2005, the EPA issued regulations for coke oven batteries, but agency representatives admitted at the time that they didn't actually know whether the regulations were adequate to protect the health of communities nearby. The EPA promised to further review the regulations, but 14 years later, nothing has happened.

Despite the ongoing media attention directed toward U.S. Steel's legacy of pollution in Southwestern Pennsylvania, the effect of the carcinogens the company pumps into the air on the region's most vulnerable population—children—is often left out of the conversation.

"Children's developing cells and biological systems are also more sensitive to many carcinogens than adults' are," Dr. Philip Landrigan, pediatrician, epidemiologist and director of the Global Public Health Program and the Global Observatory on Pollution and Health at Boston College, told EHN.

"Kids have proportionately more of these chemicals in their bodies"

Cancer isn't caused by a single event or environmental exposure, but a unique set of conditions or events that produces cancer in an individual person. The concept has been visualized by scientists as a pie chart with a different cancer cause in each slice—things like inherited genetics, high body mass index, and mutated genes from exposure to tobacco or air pollution.

We don't know exactly what each person's unique pie chart includes, but we do know that if even one part of the pie stays missing, cancer won't occur. This means some people are at higher risk because of their zip code—including children born in the Pittsburgh region.

As a result of the steel industry, kids in Southwestern Pennsylvania are exposed tocarcinogenic coke oven emissions at shockingly higher rates than kids in the rest of the country. Coke ovens heat coal to extremely high temperatures to convert it into coke, which is used to manufacture steel, and emissions from such plants include a mix of chemicals like formaldehyde, cadmium and arsenic—all linked to cancer.

EHN's analysis revealed that the total exposure concentration (or average level of exposure) to coke oven emissions for residents of Allegheny County is 99 percent higher than it is for the U.S. population as a whole (0.0111678796 micrograms per cubic meter of air vs. 0.000102, respectively), and 88 percent higher than Pennsylvania's population as a whole.

Allegheny County is more densely populated than the entire U.S. or the entire state of Pennsylvania, which contributes to that gap, but a stark contrast persists when comparing Allegheny County with other counties that have populations of a similar size: The total exposure concentration for coke oven emissions in Cuyahoga County Ohio, which encompasses Cleveland, is zero, as it is in Hennepen County, Minnesota, which encompasses Minneapolis. Kids on the other side of the state in Philadelphia also enjoy zero exposure to coke oven emissions.

Our analysis revealed that of the 100 U.S. census tracts with the highest total exposure concentration of coke oven emissions in the country, 77 percent are in Allegheny County, and 83 percent are in Southwestern Pennsylvania.

In other words, the vast majority of airborne carcinogenic coke oven emissions in America originate in Allegheny County.

The quantities sound small, but here's how coke oven emissions in the region translate to cancer risk, according to the EPA's National Air Toxics Assessment: For the average American, the risk of getting cancer from breathing in coke oven emissions is 0.10 in a million. For residents of Allegheny County, it's 11 in a million.

The population of Allegheny County is about 1.2 million, so we can expect 13 or 14 lifetime residents to get cancer at some point in their lives as a direct result of coke oven emissions.

U.S. Steel's Clairton Coke Works is the nation's largest producer of coke, and the last such facility operating in Southwestern Pennsylvania. The facility is home to 10 coke oven batteries that produce approximately 4.3 million tons of coke annually, and U.S. Steel has been charged with repeated and ongoing violation of clean air laws at the plant. Essentially all cancer risk from coke oven emissions in the region can be attributed to this plant. U.S. Steel did not return our requests for comment.

In the census tract with the highest cancer risk as a result of coke oven emissions in the nation, 89 people per million are expected to get a cancer diagnosis as a direct result of coke oven emissions. That census tract is in Allegheny County. For the most polluted census tract in Clairton, the cancer risk from coke oven emissions is 63 per million.

That's the cancer risk just from coke oven emissions—not from the cumulative effect of all air toxics in the region.

According to a more in-depth analysis of earlier NATA data, the total estimated lifetime risk of getting cancer as a direct result of exposure to air toxics across a 10-county region surrounding Pittsburgh is greater than 120 lifetime cancer diagnoses per one million people. The EPA's benchmark for "acceptable" risk from these toxics in the air is one per one million. In some places, like Clairton, lifetime cancer risk exceeds 1,000 lifetime cancer diagnoses for every 1 million people.

It's worth noting that the EPA's most recent air quality data was collected in 2014, prior to the closing of the Shenango Coke plant in Allegheny County, which was one of the region's biggest polluters.

The year after the plant closed in 2016, nearby neighborhoods saw a 38 percent dropin ER visits for asthma, so levels of carcinogens in the air will likely decrease in the release of the EPA's next Air Toxics Assessment (they're released every 3 to 5 years).

The census tract with the cancer risk of 89 per million is located in Avalon, just across the river from Neville Island, the former site of the Shenango Plant, so cancer risk will likely drop in that neighborhood in the EPA's next assessment as a result of a large reduction in emissions.

"I don't think most Pittsburghers fully understand that our cancer risk is higher than almost anywhere else in U.S. from these industrial sources," Matt Mehalik, executive director of the Breathe Project, a coalition of 24 environmental organizations, told EHN. "We could all eat right and exercise and quit smoking, but we still have to breathe this air every day."

"Even at very low doses, bad things can happen."

Landrigan, who is considered a leading expert on children's environmental health, said, "Kids breathe about four times as much air as an adults, so they have proportionately more of these chemicals in their bodies."

Because their enzymes aren't yet mature, kids have a reduced ability to detoxify their bodies and excrete chemicals that shouldn't be there, Landrigan explained. They're also more vulnerable because they're still undergoing complex development processes in their brains, immune systems, and reproductive systems.

"Thousands of steps have to occur in precise sequence during those developmental processes," Landrigan said. "If something gets in that disrupts that, even at very low doses, bad things can happen."

Pennsylvania, which has the third highest overall cancer rate in the nation, ranks sixth among U.S. states for childhood cancer rates—and Allegheny County's childhood cancer rate is slightly higher than both national and state averages.

Allegheny County saw an average of 20.6 cancer cases in people under the age of 20 for every 100,000 residents each year from 2011-2015 (the most recent years for which data is available), compared with 20.3 at the state level. The national average for the same time period is 18.2.

Meanwhile, nearby Somerset County has the second-highest childhood cancer rate of all reporting counties in the state, with an average of 31 cases a year per 100,000 people from 2011-2015.

And in neighboring Washington and Westmoreland Counties, the U.S. Centers for Disease Control and Prevention and state health officials are investigating a cluster of Ewing sarcoma, an extremely rare cancer that affects kids and teens between the ages of 10 and 20.

Nationally, fewer than 200 cases of Ewing sarcoma are diagnosed each year, but Washington County has seen six cases diagnosed at one school district (Canon-McMillon) since 2008, and Westmoreland County has seen 12 diagnoses since 2011.

Ewing sarcoma has "no known cause," in part because it's so rare there's little research on it. There are other cancers in the region that do have known environmental causes that are being included in CDC and DEP's investigations.

In addition to increasing the risk of childhood cancers, recent science indicates that exposure to cancer-causing compounds in the womb and during early childhood can also prime the body to develop cancer later in life.

"The thinking is that certain chemicals get into cells in human bodies and cause changes to the genes in those cells," Landrigan explained. "A single hit like that on a gene won't typically cause cancer—most cancers evolve over a span of multiple years or decades after five or six hits to the gene."

"But if a child goes through first two or three hits in early childhood," he added, "then that child is that much closer to developing cancer once they've become an adult."

In January, a group of doctors and researchers from around the country gathered in Pittsburgh to discuss the ways Southwestern Pennsylvania can begin to reduce cancer risk from environmental exposures. Dr. Margaret Kripke, professor emerita of the University of Texas MD Anderson Cancer Center, delivered the keynote address and said more focus needs to be put on prevention, including awareness of environmental exposures.

"Curing someone or being cured is viewed as a personal triumph, so everyone is focused on treatment," she said. "Prevention doesn't have a face. We don't know who we prevented cancer in, which is why it's easier to advocate for the fight for a cure than it is for prevention. But fighting for prevention is what we really need to do now."

"There's no way an increase that rapid can be genetic"

Childhood cancer rates in Allegheny County have been generally on the rise since 1990, according to the Pennsylvania Department of Health's cancer registry.

That upward trend mirrors a national one: The overall rate of childhood and teen cancer in the U.S. has increased about 40 percent since researchers started tracking the disease in the early 1970s. While cancer is still rare compared to other childhood diseases, it's now the second-leading cause of death among children who survive infancy in the U.S. (after injuries).

Nationally, one in every 285 American children is now diagnosed with cancer before age 20.

"We have almost 50 years of records, so the increase has averaged almost 1 percent per year over a five decade span," Landrigan said. "There's no way an increase that rapid can be genetic. Genetic changes of that magnitude take place over centuries, not decades."

Some of the increase can likely be attributed to better testing techniques, Landrigan explained, but not all of them. This is particularly true of childhood leukemia, the most common form of childhood cancer, since the basic test—finding too many white cells in a blood sample and confirming diagnosis with a bone marrow examination—has remained the same.

"I believe it's a real increase we're seeing," Landrigan said, "and if it's not entirely explained by genetics or improvements in diagnostics, then by exclusion it has to be due to something in the environment." He added that "the environment," broadly defined, includes chemical exposures but also changes in diet and lifestyle.

A growing body of research links the disease to environmental exposures like pollution from traffic, exposure to pesticides and insecticides, and exposure to air toxics from industrial sources like the benzene, arsenic, and coke oven emissions that continue to plague Allegheny County.

A number of studies have also linked parents' exposures that occur before their children are even conceived to increased risk of childhood cancer for their kids.

Some good news

The good news is that medical advances have made us much better at treating childhood cancer.

While survival rates for some rare childhood cancers remains low, the survival rate for leukemia is around 85 percent. Brain cancer, the second-most common childhood cancer, has a similarly high survival rate. The overall 5-year survival rate for children and teens non-metastasized Ewing sarcoma—the rare cancer there's a cluster of in Washington County—is about 70 percent.

As a result of both the influx in childhood cancer and ever-improving medical advances, one in every 530 American adults ages 20-39 is now a childhood cancer survivor.

But treatment and survival are difficult. These children often lose their hair and endure side effects like nausea, vomiting, pain, behavioral problems and anxiety. The emotional impact to both the patients and their families can last a lifetime.

"Surviving cancer is life-changing for the patient and the family," Dr. Erika Friehling, a pediatric hematologist/oncologist at the University of Pittsburgh Medical Center's Children's Hospital, where Madelina DeLuca received her treatment, told EHN.

"Even seeing patients that completed treatment five to 10 years ago, they still carry many of those emotions. Some parents talk about almost a PTSD phenomenon coming back to Children's Hospital," Friehling said.

In addition to the emotional impacts, many kids who survive cancer often experience health problems related to treatment or survivorship: 60 percent of children who survive the disease experience health problems like infertility, heart failure and secondary cancers later in life as a result.

"We're also learning more about the neurocognitive impacts of undergoing chemotherapy as a child," Friehling said. "Specifically for the treatment of acute lymphoblastic leukemia, we're seeing some struggles in learning and developing more complex processing skills as kids get older, so we're beginning to put an emphasis on making sure those patients get extra attention as they're being treated or after being cured."

Kristin DeLuca said Madelina gets tested for heart problems and cognitive issues regularly since completing her treatment.

"There are a gazillion unfortunate side effects," she said. "Fortunately we haven't encountered any other than some very minor developmental delays...but as she continues to grow, they're definitely something we need to watch out for."

How parents can protect their kids

Children, like adults, are exposed to carcinogens in the environment in three ways: They consume them in the things they eat, absorb them through their skin, and inhale them in the air they breathe. Exposure to some carcinogens is inevitable, but there are also concrete steps parents can take to reduce their children's' cancer risk.

"If you can afford to do so, eat organic," Landrigan said. "We know families that eat organic have substantially lower levels of toxic chemicals in their bodies than people who eat so-called 'conventional' food. Parents can also minimize the use of chemicals in the home and especially pesticides in the lawn or garden."

He also suggested working with local schools to encourage them to minimize the use of chemicals in their cleaning products and on the playing fields—a task already being tackled by the Pittsburgh nonprofit Women for a Healthy Environment, which provides resources to schools with the aim of limiting the toxic exposures kids encounter in their learning environments.

Parents can also minimize the number of carcinogens kids absorb through their skin by buying personal care products that have been verified as safe by an independent third party, and can help raise awareness about environmental exposures and cancer by referring their kids' pediatricians to the CDC's online education module for environmental health, which counts toward required Continuing Medical Education credits.

While those things can help, every child living in Southwestern Pennsylvania has to breathe the region's air.

"When talking about broader hazards that affect the whole region like air pollution in Southwestern Pennsylvania," Landrigan said, "the only solution is political. Unless these industries suddenly decide to act like adults and regulate their own emissions—which hasn't happened historically—then regulators are going to have to step in and be the parent."

Regulators have increased their efforts to do that in recent months. The Allegheny County Health Department fined U.S. Steel for excessive pollution at Clairton Coke Works three times in less than a year. But there's still a role for policymakers to play in improving the region's air quality to protect kids from carcinogens.

"Individual doctors can speak out about the hazards and exert their influence, as many courageously do," Landrigan said, "but ultimately, elected representatives are going to have to stand up for children and do the right thing."

Northern California Record

Bill aimed at banning chemicals in personal care products stalls in California legislature

https://norcalrecord.com/stories/512448787-bill-aimed-at-banning-chemicals-in-personal-care-products-stalls-in-california-legislature

John Breslin

Posted: April 22, 2019

SACRAMENTO – California legislators have parked a bill that would have banned the use of a range of chemicals in personal health care products.

Members of the Assembly's Environment, Safety and Toxic Materials Committee failed to vote on the Toxic-Free Cosmetics Act, AB 495 after it became clear supporters did not have enough votes to move it to the Health Committee.

The legislation, opposed by industry groups who argue the bill's sponsors hugely simplified the issue, aimed to ban 20 chemicals and chemical groups, including mercury, lead, phthalates, formaldehyde, triclosan and fluorinated compounds known as per- and polyfluoroalkyls (PFAS).

They would have been labeled "adulterated cosmetics" and banned from sale in California. The bill is sponsored by Environmental Working Group and CALPIRG, the California-headquartered consumer advocacy organization.

Supporters hoped that given California's outsized consumer heft that the ban would spread across the country.

Andrew Fasoli of the American Chemistry Council, a trade association, previously told the *Northern California Record* that the state "already has a process in place to do exactly what this legislation is intending to do."

"In 2013, DTSC's (Department of Toxic Substances Control) Safer Consumer Products Program took effect, creating a rule making authority that brings multiple stakeholders to the table to determine the risks that chemicals in consumer products pose and if a viable and effective alternative is available," Fasoli said.

"It does not make sense for the legislature to circumvent a program that they created and completely ignore the determinations made by qualified experts."

Jay Ansell, vice president of the trade group Personal Care Products Council, told the Los Angeles Times that the bill "grossly oversimplifies the complex science behind the ingredients in cosmetics and personal-care products."

Ansell added that independent experts around the world found the chemicals named in the bill were "safe when used under prescribed conditions in cosmetics and personal-care products."

He told the LA Times that "laws like AB 495 would just contribute to the patchwork of state and local regulations that do not represent the best relevant and available science."

The issue of PFAS chemical compounds, of which there are some 5,000 but around 100 in use in a wide range of consumer products as well as in fire-fighting foam used by both the military and civilian emergency crews, was the subject of a recent U.S. Senate committee hearing.

Susan D. Richardson, a professor of chemistry at the University of South Carolina and affiliated with the American Chemical Society, has written several review articles on the toxicity of PFAS compounds.

Richardson told the *Northern California Record* that it is her understanding that these compounds are included in personal care products to add stabilization and consistency.

Few human studies have been carried out on their impact and whether there are links between the compounds, particularly two of the most historically common, perfluorooctanoic acid (PFOA), and perfluorooctanesulfonic acid (PFOS), and certain conditions and diseases, the professor said, adding that the reason is due to their expense.

One study on residents in the Mid-Ohio Valley in West Virginia, included on the website of the National Institutes of Health (NIH), did conclude "PFOA exposure was associated with kidney and testicular cancer in this population. Because this is largely a survivor cohort, findings must be interpreted with caution, especially for highly fatal cancers such as pancreatic and lung cancer."

The residents were downriver from a DuPont facility that manufactured products containing PFOA.

While personal care products are the target in California, the PFAS compounds can be found in microwave popcorn, inside pizza boxes, ski jackets, dental floss, Teflon-coated cooking pans, and brand names such as Scotch Guard.

The use of PFOA and PFAS has largely been discontinued, but Richardson noted that the so-called Gen X replacements, which it was thought would degrade much quicker, remains stable in the environment, including drinking water.

The Senate Environment and Public Works Committee heard testimony from representatives of the NIH, the U.S. Environmental Protection Agency, and the Centers for Disease Control on the potential impact of a man-made, fluorine-based chemical class.

It focused on those two most-widely used historically - the ones provoking the deepest concern. National health agencies have been investigating health concerns regarding the chemicals for three decades, largely over their seeping into drinking and ground water.

Members also heard testimony and questioned a senior official from the Department of Defense, which used large amounts of the foam known as AFFF. For years, the foam was used in training and to fight fires and contained the two chemicals in the class.

The Progressive Farmer DTN

EPA to Revisit Chlorpyrifos Petition

https://www.dtnpf.com/agriculture/web/ag/crops/article/2019/04/22/ninth-circuit-orders-epa-consider-2

Todd Neeley

Posted: 12:58pm, April 22, 2019

OMAHA (DTN) -- The EPA has until July 18 to address objections to its 2007 decision to reject a petition asking the agency to ban chlorpyrifos, as a result of an order issued on Friday by the U.S. Court of Appeals for the Ninth Circuit in San Francisco.

The order came after a hearing before all of the judges of the Ninth Circuit on March 26, 2019. That hearing was requested by the EPA, after a smaller panel by the court last year ordered the cancellation of all chlorpyrifos registrations.

According to the order handed down on Friday, the agency indicated during oral arguments it could consider and have a decision within 90 days on objections filed by the League of United Latin American Citizens, or LULAC.

The EPA denied a petition filed by environmental groups on March 30, 2017, to ban the pesticide outright. The agency said in a statement at the time that farmers need chlorpyrifos, and "sound science" when making decisions.

The LULAC objected to the decision and the agency did not respond to those objections.

The agency's rejection of the 2007 petition was a surprising reversal from the stance of the EPA under the Obama administration, which had indicated as recently as fall 2016 that it was prepared to issue a full ban on the pesticide. The Ninth Circuit last year decided the EPA had been ignoring its own science that showed chlorpyrifos is allegedly a danger to children.

In August 2018, the EPA asked for an "en banc" hearing before all non-recused judges in the Ninth Circuit. En banc hearings are reserved for cases that are particularly complex.

On Aug. 9, 2018, a three-judge panel on the court ordered EPA to cancel all chlorpyrifos registrations in 60 days. The court ruled the agency was not justified in maintaining the insecticide's registration "in the face of scientific evidence that its residue on food causes neurodevelopmental damage to children." Chlorpyrifos' registration was set to end on Oct. 9, 2018.

Chlorpyrifos is the main ingredient in Dow AgroScience's Lorsban insecticide, which targets pests such as soybean aphids, spider mites and corn rootworm.

Attorneys with the U.S. Department of Justice argued in EPA's petition that the law requires the court to allow the EPA to reconsider the insecticide's registration.

The petition argued the court's revocation of the registration was in conflict with cancellation requirements laid out in the Federal Insecticide, Fungicide, and Rodenticide Act, or FIFRA.

The legal pursuit began in 2007 when the Pesticide Action Network North America and the Natural Resources Defense Council petitioned EPA to cancel chlorpyrifos registrations.

Following the court's August 2018 decision, an EPA spokesman told DTN the decision was based on data that was not accessible to the agency.

A Columbia Center for Children's Environmental Health study has been widely used as support for the ban, despite divergent scientific views among EPA scientific review panels, and former President Barack Obama's administration's USDA questioning the study and its data.

A 2016 EPA scientific advisory panel indicated some members of that panel said they had difficulty assessing the study, because the raw data from the study was not made available.

On July 30, 2018, the California Department of Pesticide Regulation released a scientific assessment that concluded that chlorpyrifos should be listed as a toxic air contaminant in the state based on evidence of its neurological effects and exposure risks.